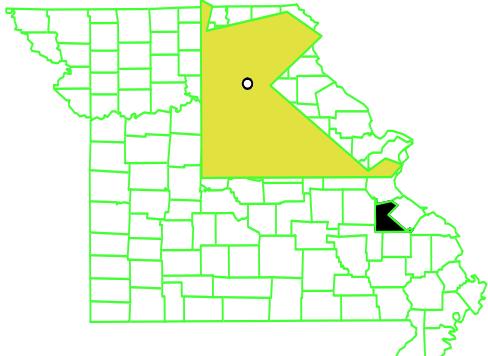


# **EXHIBIT D**

**BIG RIVER MINE  
TAILINGS/ST. JOE  
MINERALS  
CORPORATION SITE  
MISSOURI  
EPA ID# MOD981126899**

**EPA Region 7**  
City: Desloge  
County: St. Francois County  
Other Names:

**05/12/2011**



## **SITE DESCRIPTION**

The Big River Mine Tailings/St. Joe Minerals Corp. site is located in a former mining region known as the "Old Lead Belt", which is 70 miles south of St. Louis. This site is composed of six large areas of mine waste in this rural region, approximately 110 square miles in size. The areas included are the Bonne Terre Mine Tailings Site, the Leadwood Mine Tailings Site, the Elvins Mine Tailings Site, the Federal Mine Tailings Site, the Desloge Mine Tailings Site, and the National Mine Tailings Site. Also included are the surrounding residential and recreational areas. In 1977, heavy rains caused an estimated 50,000 cubic yards of tailings to slump into the Big River. The residual lead content in the tailings material is about one-half percent; other minerals such as cadmium and zinc are also present. The Missouri Department of Conservation has detected elevated lead levels in fish downstream of the mining area above World Health Organization Standards. The State of Missouri advises people fishing not to eat fish they catch from the Big River downstream of this area. The Big River is used for recreational purposes such as fishing and canoeing, as well as for commercial activities such as watering livestock. Approximately 23,000 people reside within 4 miles of the site. Dust created by wind erosion contaminates the surrounding area and is a potential hazard to residents. A 1997 human health exposure study by the Missouri Department of Health (MDOH) showed that 17% of the children under seven years old had blood-lead concentrations exceeding the health-based standard of 10 microgram per deciliter. Since EPA has implemented its response actions at residential properties, MDOH has reported that rate of blood-lead exceedances in young children have dropped to 2.6% in 2009.

### Site Responsibility:

This site is being addressed through Federal and potentially responsible parties' actions.

### NPL LISTING HISTORY

**Proposed Date:** 02/07/92

**Final Date:** 10/14/92

**Deleted Date:**

## THREATS AND CONTAMINANTS



Elevated levels of lead, cadmium, and zinc have been detected in the tailings pile. Surface water and various forms of biota in the Big River contain elevated concentrations of lead. Wind erosion and airborne dust have transported contaminants to the surrounding area and are a potential hazard to on-site workers, residents, and children. Fish in the Big River have shown elevated levels of lead. People on-site and in the areas surrounding the mine waste piles are at risk of being exposed to contaminants in the dust and soil.

## CLEANUP APPROACH

### Response Action Status

Initial Actions: In 1995, the parties potentially responsible for site contamination began a non-time critical removal action to regrade the mine wastes at the Desloge pile. The regrading improved the structural stability of the pile thereby preventing sloughing into the river. Other activities at the site include covering and revegetating to control wind and weather erosion and providing rock slope protection at the waterline to prevent undercutting by the river.

Entire site: The other five major mine waste areas have been documented to have contaminant releases and will be controlled through non-time critical removal actions (NTCRA). The first step in a non-time critical removal action is to prepare an engineering evaluation/cost analysis (EE/CA) followed by the NTCRA. Mine waste EE/CA schedules and NTCRA schedules are as follows:

| Site                                   | EE/CA Status                    | Year |
|--|---------------------------------|------|
| Big River (Desloge) Mine Tailings Pile | completed                       | 1994 |
| Federal Mine Tailings Pile (Dam)       | completed for dam stabilization | 1996 |
| Bonne Terre Mine Tailings Pile         | completed                       | 1999 |
| Elvins Mine Tailings Pile              | completed                       | 2005 |
| National Mine Tailings Pile            | completed                       | 2005 |
| Leadwood Mine Tailings Pile            | completed                       | 2006 |
| Federal Tailings Pile (Beaches)        | completed                       | 2008 |
| Federal Tailings Pile (Park)           | completed                       | 2009 |

| Site                                   | NTCRA Status                    | Year |
|--|---------------------------------|------|
| Big River (Desloge) Mine Tailings Pile | completed                       | 2000 |
| Bonne Terre Mine Tailings Pile         | completed                       | 2007 |
| Elvins Mine Tailings Pile              | completed                       | 2009 |
| National Mine Tailings Pile            | scheduled for completion        | 2012 |
| Leadwood Mine Tailings Pile            | completed                       | 2011 |
| Federal Mine Tailings Pile (Dam)       | completed for dam stabilization | 1999 |
| Federal Tailings Pile (Beaches)        | completed for beaches           | 2009 |
| Federal Tailings Pile (Park)           | Scheduled for completion        | 2012 |

These actions and others will address the source releases from the mine waste areas. A focused remedial investigation and feasibility study (RI/FS) was started in January 1997 to evaluate the human health and ecological impacts on areas surrounding and between the mine wastes areas. The RI/FS and subsequent Record of Decision (ROD) will be completed by September 2011. This ROD will focus on residential areas. A Final Record of Decision will be required to remediate the residual lead contamination in off-pile non-residential areas. It will require many years to carry out all the remedies. Until long-term remedial action is taken, a combined effort of federal, state, and local governments and the potentially responsible parties will take actions to reduce child blood-lead levels. Actions to reduce child blood-lead levels include in-home cleaning, health education, and yard soil replacement. EPA will also evaluate the result of testing at day-care centers, public parks, and other common areas, and action will be taken to reduce the soil exposures, if needed. Prioritization of the actions takes into account actual threats and local concerns.



**Initial Actions:** A Time-Critical Removal Action was initiated by EPA to address lead-contamination at 6 area schools and 19 daycares, and one residential property. As of 5/10/2011, 17 out of 19 daycares were remediated, 5 out of 6 schools were remediated, and action was ongoing at the residential property.



**Initial Actions:** EPA has recently released a plan to remediate up to 300 residential properties and 5 schools. The plan went out for bid on April 26, 2011, and will close for bids on May 25, 2011.

**Site Facts:**

Enforcement Actions:

Administrative Order on Consent = AOC

Engineering Evaluation/Cost Analysis = EE/CA

Unilateral Administrative Order = UAO

Non-Time Critical Removal Action = NTCRA

Time Critical Removal Action = TCRA

| Site              | Order | Year | Parties  | Actions                               |
|-------------------|-------|------|--|---------------------------------------|
| Site-wide         | AOC   | 1994 | Doe Run Resources Corp., St. Francois Co. Env. Corp. | Removals                              |
| Bonne Terre       | AOC   | 1997 | Doe Run Resources Corp.                              | EE/CA                                 |
| Site-wide         | AOC   | 1997 | Doe Run Resources Corp., ASARCO                      | Focused RI/FS                         |
| Federal           | AOC   | 1997 | Doe Run Resources Corp., ASARCO, state of MO         | EE/CA                                 |
| National          | AOC   | 1998 | Doe Run Resources Corp., NL Industries               | EE/CA                                 |
| Elvins & Leadwood | AOC   | 2000 | Doe Run Resources Corp.                              | EE/CA                                 |
| Site-wide         | AOC   | 2000 | Doe Run Resources Corp.                              | Blood-lead screenings & soil removals |
| Bonne Terre       | AOC   | 2001 | Doe Run Resources Corp.                              | NTCRA                                 |

|           |     |      |  |       |
|-----------|-----|------|--|-------|
| Site-wide | AOC | 2004 | Doe Run Resources Corp.  | TCRA  |
| Elvins    | UAO | 2005 | Doe Run Resources Corp.  | NTCRA |
| Leadwood  | UAO | 2006 | Doe Run Resources Corp.  | NTCRA |
| National  | UAO | 2006 | Doe Run Resources Corp.<br>NL Industries<br>City of Park Hills, MO.          | NTCRA |
| Federal   | AOC | 2011 | Doe Run Resources Corp.<br>State of Missouri Department of Natural Resources | NTCRA |

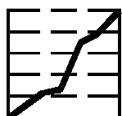
Non-Enforcement Action:

EPA completed an Ecological Risk Assessment in 2006

EPA completed a Human Health Risk Assessment in 2009

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## ENVIRONMENTAL PROGRESS



Stabilizing the Desloge tailings pile is completed and progress is being made to develop a permanent vegetative cover on the remaining uncovered areas. Construction of NTCRAs has been completed at the Bonne Terre, Elvins, and Leadwood Piles. Construction of a NTCRA is ongoing at the National Tailings Pile. The dam and beaches have been addressed by earlier actions and construction will begin on the final phase of work at the Federal Mine Tailings Pile in the summer of 2011. More than 550 residential yards, 17 daycares, and 5 schools have had lead contaminated soil replaced. A site-specific contract will be initiated in June-July 2011 to address lead contamination at up to 300 residential properties and 5 additional schools. The Record of Decision for Operable Unit-1 (residential yards) will be complete by September 2011 to address the remaining residential yards and child-high use areas in St. Francois County.

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## COMMUNITY INVOLVEMENT

Numerous meetings, ads, Fact Sheets, Press Releases and other communication venues have been used to interact with the citizens who reside near these mining areas in St. Francois County. Ongoing communication by EPA has been noted positively by community members and elected officials.

## SITE REPOSITORY



Desloge Public Library, 209 N.  
Desloge Drive, Desloge, MO 50613  
St. Francois County Health  
Department, 1025 West Main, Park  
Hills Mo 63601

Superfund Records Center  
901 N. 5th St.  
Kansas City, KS 66101  
Mail Stop SUPR  
(913)551-7166

## REGIONAL CONTACTS

**SITE MANAGER:**

Jason Gunter

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**PHONE NUMBER:**

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**COMMUNITY INVOLVEMENT**

Debbie Kring

**COORDINATOR:**

(913) 551-7725

**PHONE NUMBER:**

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**E-MAIL ADDRESS:****STATE CONTACT:**

Kathy Rangen

**PHONE NUMBER:**

(573) 751-8393

**E-MAIL ADDRESS:**

kathy.rangen@dnr.mo.gov

## MISCELLANEOUS INFORMATION

**STATE:**

MO

07CR

**CONGRESSIONAL DISTRICT:**

08

**EPA ORGANIZATION:**

SFD-SUPR/SPEB

## MODIFICATIONS

|                          |   |                            |                     |
|--------------------------|---|----------------------------|---------------------|
| <b>Created by:</b>       | Karla<br>Asberry/SUPRFUND/R7/US<br>EPA/US | <b>Created Date:</b>       | 10/17/97 02:02 PM   |
| <b>Last Modified by:</b> | Jason Gunter/R7/USEPA/US                  | <b>Last Modified Date:</b> | 05/12/2011 01:09 PM |